



1600

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/287,500

DATE: 08/08/2003

TIME: 16:23:23

Input Set : A:\STK-1 DIV-3 Sequence Listing.txt

Output Set: N:\CRF4\08082003\I287500.raw

RECEIVED

AUG 13 2003  
TECH CENTER 1600/2900

3 <110> APPLICANT: Lee et al., John C  
 5 <120> TITLE OF INVENTION: COMPOSITIONS AND THERAPEUTIC METHODS USING MORPHOGENIC  
 PROTEINS

6 AND STIMULATORY FACTORS

8 &lt;130&gt; FILE REFERENCE: STK-1 DIV-3

10 &lt;140&gt; CURRENT APPLICATION NUMBER: US 09/287,500

11 &lt;141&gt; CURRENT FILING DATE: 1999-04-07

13 &lt;150&gt; PRIOR APPLICATION NUMBER: US 09/158,220

14 &lt;151&gt; PRIOR FILING DATE: 1998-09-22

16 &lt;160&gt; NUMBER OF SEQ ID NOS: 5

18 &lt;170&gt; SOFTWARE: PatentIn version 3.2

20 &lt;210&gt; SEQ ID NO: 1

21 &lt;211&gt; LENGTH: 431

22 &lt;212&gt; TYPE: PRT

23 &lt;213&gt; ORGANISM: Homo sapiens

25 &lt;400&gt; SEQUENCE: 1

27 Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala

28 1 5 10 15

31 Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser

32 20 25 30

35 Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser

36 35 40 45

39 Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu

40 50 55 60

43 Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro

44 65 70 75 80

47 Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Gly Gly

48 85 90 95

51 Gly Pro Gly Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser

52 100 105 110

55 Thr Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr

56 115 120 125

59 Asp Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys

60 130 135 140

63 Glu Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu

64 145 150 155 160

67 Ser Lys Ile Pro Glu Gly Glu Ala Val Thr Ala Ala Glu Phe Arg Ile

68 165 170 175

71 Tyr Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Arg Ile

72 180 185 190

75 Ser Val Tyr Gln Val Leu Gln Glu His Leu Gly Arg Glu Ser Asp Leu

76 195 200 205

79 Phe Leu Leu Asp Ser Arg Thr Leu Trp Ala Ser Glu Glu Gly Trp Leu

80 210 215 220

ENTERED

## RAW SEQUENCE LISTING

DATE: 08/08/2003

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TIME: 10:23:23

Input Set : A:\STK-1 DIV-3 Sequence Listing.txt

Output Set: N:\CRF4\08082003\I287500.raw

```

83 Val Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg
84 225                230                235                240
87 His Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser
88                245                250                255
91 Ile Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn
92                260                265                270
95 Lys Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Phe
96                275                280                285
99 Arg Ser Ile Arg Ser Thr Gly Ser Lys Gln Arg Ser Gln Asn Arg Ser
100 290                295                300
103 Lys Thr Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Asn Val Ala Glu
104 305                310                315                320
107 Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys His Glu Leu Tyr
108                325                330                335
111 Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala Pro Glu
112                340                345                350
115 Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro Leu Asn
116                355                360                365
119 Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu Val His
120 370                375                380
123 Phe Ile Asn Pro Glu Thr Val Pro Lys Pro Cys Cys Ala Pro Thr Gln
124 385                390                395                400
127 Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn Val Ile
128                405                410                415
131 Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys His
132                420                425                430

```

135 &lt;210&gt; SEQ ID NO: 2

136 &lt;211&gt; LENGTH: 96

137 &lt;212&gt; TYPE: PRT

138 &lt;213&gt; ORGANISM: Artificial Sequence

140 &lt;220&gt; FEATURE:

141 &lt;223&gt; OTHER INFORMATION: Description of Artificial Sequence: Synthetic amino acid sequence

142 COP-5

144 &lt;400&gt; SEQUENCE: 2

```

146 Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asp Asp Trp Ile Val Ala
147 1      5      10      15
150 Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro
151      20      25      30
154 Leu Ala Asp His Phe Asn Ser Thr Asn His Ala Val Val Gln Thr Leu
155      35      40      45
158 Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr
159      50      55      60
162 Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val
163 65      70      75      80
166 Val Leu Lys Tyr Asn Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
167      85      90      95
170 <210> SEQ ID NO: 3
171 <211> LENGTH: 96
172 <212> TYPE: PRT

```

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Input Set : A:\STK-1 DIV-3 Sequence Listing.txt

Output Set: N:\CRF4\08082003\I287500.raw

```

173 <213> ORGANISM: Artificial Sequence
175 <220> FEATURE:
176 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic amino acid
sequence
177         COP-7
179 <400> SEQUENCE: 3
181 Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala
182 1             5             10             15
185 Pro Pro Gly Tyr His Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro
186             20             25             30
189 Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Val Val Gln Thr Leu
190             35             40             45
193 Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr
194             50             55             60
197 Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val
198 65             70             75             80
201 Val Leu Lys Tyr Asn Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
202             85             90             95
205 <210> SEQ ID NO: 4
206 <211> LENGTH: 102
207 <212> TYPE: PRT
208 <213> ORGANISM: Artificial Sequence
210 <220> FEATURE:
211 <223> OTHER INFORMATION: Description of Artificial Sequence: Generic Sequence
214 <220> FEATURE:
215 <221> NAME/KEY: MOD_RES
216 <222> LOCATION: (1)..(102)
217 <223> OTHER INFORMATION: X is independently selected from a group of one or more
specified
218         amino acids as defined in the specification
220 <220> FEATURE:
221 <221> NAME/KEY: misc_feature
222 <222> LOCATION: (2)..(5)
223 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
225 <220> FEATURE:
226 <221> NAME/KEY: misc_feature
227 <222> LOCATION: (7)..(7)
228 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
230 <220> FEATURE:
231 <221> NAME/KEY: misc_feature
232 <222> LOCATION: (9)..(9)
233 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
235 <220> FEATURE:
236 <221> NAME/KEY: misc_feature
237 <222> LOCATION: (11)..(11)
238 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
240 <220> FEATURE:
241 <221> NAME/KEY: misc_feature
242 <222> LOCATION: (13)..(13)
243 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
245 <220> FEATURE:

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## RAW SEQUENCE LISTING

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Input Set : A:\STK-1 DIV-3 Sequence Listing.txt

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246 <221> NAME/KEY: misc\_feature  
247 <222> LOCATION: (16)..(17)  
248 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
250 <220> FEATURE:  
251 <221> NAME/KEY: misc\_feature  
252 <222> LOCATION: (19)..(21)  
253 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
255 <220> FEATURE:  
256 <221> NAME/KEY: misc\_feature  
257 <222> LOCATION: (23)..(23)  
258 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
260 <220> FEATURE:  
261 <221> NAME/KEY: misc\_feature  
262 <222> LOCATION: (25)..(26)  
263 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
265 <220> FEATURE:  
266 <221> NAME/KEY: misc\_feature  
267 <222> LOCATION: (28)..(28)  
268 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
270 <220> FEATURE:  
271 <221> NAME/KEY: misc\_feature  
272 <222> LOCATION: (31)..(31)  
273 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
275 <220> FEATURE:  
276 <221> NAME/KEY: misc\_feature  
277 <222> LOCATION: (33)..(33)  
278 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
280 <220> FEATURE:  
281 <221> NAME/KEY: misc\_feature  
282 <222> LOCATION: (35)..(36)  
283 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
285 <220> FEATURE:  
286 <221> NAME/KEY: misc\_feature  
287 <222> LOCATION: (38)..(45)  
288 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
290 <220> FEATURE:  
291 <221> NAME/KEY: misc\_feature  
292 <222> LOCATION: (49)..(50)  
293 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
295 <220> FEATURE:  
296 <221> NAME/KEY: misc\_feature  
297 <222> LOCATION: (52)..(53)  
298 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
300 <220> FEATURE:  
301 <221> NAME/KEY: misc\_feature  
302 <222> LOCATION: (55)..(57)  
303 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
305 <220> FEATURE:  
306 <221> NAME/KEY: misc\_feature

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Input Set : A:\STK-1 DIV-3 Sequence Listing.txt

Output Set: N:\CRF4\08082003\I287500.raw

```

307 <222> LOCATION: (59)..(62)
308 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
310 <220> FEATURE:
311 <221> NAME/KEY: misc_feature
312 <222> LOCATION: (64)..(65)
313 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
315 <220> FEATURE:
316 <221> NAME/KEY: misc_feature
317 <222> LOCATION: (68)..(68)
318 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
320 <220> FEATURE:
321 <221> NAME/KEY: misc_feature
322 <222> LOCATION: (70)..(77)
323 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
325 <220> FEATURE:
326 <221> NAME/KEY: misc_feature
327 <222> LOCATION: (79)..(85)
328 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
330 <220> FEATURE:
331 <221> NAME/KEY: misc_feature
332 <222> LOCATION: (87)..(87)
333 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
335 <220> FEATURE:
336 <221> NAME/KEY: misc_feature
337 <222> LOCATION: (89)..(90)
338 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
340 <220> FEATURE:
341 <221> NAME/KEY: misc_feature
342 <222> LOCATION: (92)..(93)
343 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
345 <220> FEATURE:
346 <221> NAME/KEY: misc_feature
347 <222> LOCATION: (95)..(95)
348 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
350 <220> FEATURE:
351 <221> NAME/KEY: misc_feature
352 <222> LOCATION: (97)..(98)
353 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
355 <220> FEATURE:
356 <221> NAME/KEY: misc_feature
357 <222> LOCATION: (100)..(100)
358 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
360 <220> FEATURE:
361 <221> NAME/KEY: misc_feature
362 <222> LOCATION: (102)..(102)
363 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
365 <400> SEQUENCE: 4
W--> 367 Cys Xaa Xaa Xaa Xaa Leu Xaa Val Xaa Phe Xaa Asp Xaa Gly Trp Xaa
      368 1          5          10          15

```

**RAW SEQUENCE LISTING ERROR SUMMARY**  
PATENT APPLICATION: US/09/287,500

DATE: 08/08/2003  
TIME: 10:23:24

Input Set : A:\STK-1 DIV-3 Sequence Listing.txt  
Output Set: N:\CRF4\08082003\I287500.raw

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:4; Xaa Pos. ~~2, 3, 4, 5, 7, 9, 11, 13, 16, 17, 19, 20, 21, 23, 25, 26, 28, 31, 33, 35, 36~~  
Seq#:4; Xaa Pos. ~~38, 39, 40, 41, 42, 43, 44, 45, 49, 50, 52, 53, 55, 56, 57, 59, 60, 61, 62~~  
Seq#:4; Xaa Pos. ~~64, 65, 68, 70, 71, 72, 73, 74, 75, 76, 77, 79, 80, 81, 82, 83, 84, 85, 87~~  
Seq#:4; Xaa Pos. ~~89, 90, 92, 93, 95, 97, 98, 100, 102~~  
Seq#:5; Xaa Pos. 1, 2, 3, 4, 5, 7, 9, 11, 13, 16, 17, 19, 20, 21, 23, 25, 26, 28, 31, 33, 35, 36  
Seq#:5; Xaa Pos. 38, 39, 40, 41, 42, 43, 44, 45, 49, 50, 52, 53, 55, 56, 57, 59, 60, 61, 62  
Seq#:5; Xaa Pos. 64, 65, 71, 72, 73, 74, 75, 76, 77, 78, 80, 81, 82, 83, 84, 85, 86, 88, 90  
Seq#:5; Xaa Pos. 91, 92, 93, 94, 96, 97, 98, 99, 102